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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/803,007	03/17/2004	Xubin Song	10541-1931	4391

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EXAMINER
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PIPALA, EDWARD J

ART UNIT	PAPER NUMBER
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3663

DATE MAILED: 11/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/803,007

Applicant(s)

SONG, XUBIN

Examiner

Edward Pipala

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 3/17/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

1. This Office action is in reply to Applicant's election dated 9/27/06, in which Group I, claims 1-17 were elected without traverse, and in which claims 18-27 have been canceled. Accordingly, claims 1-17 are presently pending.

### ***Information Disclosure Statement***

2. Applicant's IDS filed with the application on 3/17/04 has been fully considered by the Examiner as indicated by the accompanying initialed copy of Applicant's form PTO-1449 (2 sheets).

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 12-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 12, line 2, recites "wherein the controller is configured to calculate an effective frequency based on the first and second frequency amplitudes". Applicant's use of the term "effective" in this manner is indefinite because of it is unclear as to exactly what constitutes an "effective" frequency in the context of the claim, and exactly with respect to what standard of "effectiveness" (e.g., desired or expected results).

Claim 13, line 2, once again recites "wherein the controller is configured to calculate an effective frequency", and even goes on to recite that it is based on a relationship of  $A_1/A_0$ , but Applicant has still not clearly pointed out and distinctly claimed exactly what constitutes an "effective" frequency.

Claim 14, lines 2-3, recite "configured to calculate the desired heave strut pressure based on the strut relative velocity and the effective frequency", wherein it is deemed that the use of both the terms "desired" and "effective" renders the claim indefinite in that the conditions which would satisfy the subjective conditions of being both desired and effective are not clearly and distinctly pointed out in the claims.

Claims 15, 16 and 17 each recite the terms "desired" and "effective" in a similar manner as above, except with respect to heave strut pressure, roll strut pressure and pitch strut pressure, respectively, and are considered indefinite for the reasons already given above with respect to claims 12-14.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3 and 7-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Leaphart et al. (5,696,677).

With respect to independent claim 1, Leaphart et al. disclose a vehicle chassis control system in which the relative velocity between a corner of a vehicle body and a vehicle wheel is determined through the use of a relative position sensor mounted between the vehicle body corner and the vehicle wheel (as shown in figure 1, element 15), where the position information is then used as shown in figure 2 (elements 100, 102) to determine both the relative velocities of the corners of the vehicle as well as body modal velocities (relating to heave, pitch and roll of the vehicle). Figure 1 also shows the use of a suspension controller (52) which in communication with the plurality of sensors and actuates controllable damper (21) so as to effect variable force real time control as taught in col. 3, ll. 51-61.

With respect to claims 2, 3 and 7, relating to a derivative filter for generating strut relative velocity from the displacement signals and therefrom also determining body relative velocities, please see col. 4, line 60 through about col. 5, line 45, wherein it is taught that the relative velocity signals are used to or for indicating the relative heave, roll and pitch velocities between the vehicle body and the wheels (the latter portion of which indicates that these body components are generally in the 1 Hz range).

With respect to claims 8-12, which relate to extracting a first frequency amplitude

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based on body relative velocity (claim 8), applying a high pass filter before extracting said body relative velocity (claim 9), extracting a second frequency amplitude based on the body relative velocity (claim 10), applying a low pass filter to the body relative velocity before extracting said second amplitude (claim 11), and calculating an effective frequency based on the first and second frequency amplitudes, please again see column 4, line 60 through column 5, line 46, as well as col. 5, line 65 through col. 6, line 38, and column 7, lines 23 through 67.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leaphart et al. in view of Majeed et al. (5,897,130).

Leaphart et al., discloses the detection of vehicle body to wheel relative position movement and therefrom determines vehicle body attitude conditions such as heave, pitch and roll. Leaphart et al., also teaches doing so as part of a vehicle chassis control system, but does not precisely define the relative body motion equations by which to calculate or relating to the body relative heave velocity (claim 4), body relative pitch velocity (claim 5) or the body relative roll velocity (claim 6).

Majeed et al. ('130) also discloses a vehicle chassis control system, having a suspension controller (50) and variable force real time controllable dampers (21), but further discloses (in column 7, line 16 through column 9, line 32), equations for determining a relative heave velocity (col. 7, ll. 40-47), relative roll velocity (col. 8, ll. 33-40), and relative pitch velocity (col. 9, ll. 3-10). The Examiner readily acknowledges that the heave, pitch and roll equations of Majeed et al. ('130) are not exactly identical to those claimed by Applicant in claims 4 through 6, since Majeed et al. ('130) makes use of wheel speeds at each of the corners of the vehicle, instead of determined relative velocity, nevertheless the equations of Majeed et al. ('130) are of exactly the same format claimed by Applicant and are used to define similarly named terms (e.g., "relative heave velocity", "relative roll velocity" and "relative pitch velocity").

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have implemented the equations taught by Majeed et al. ('130), within the context of the vehicle chassis control system of Leaphart et al. by replacing the wheel speed values for each of the corners of the vehicle with the relative velocity values for each of the corners as taught by Leaphart et al. when determining heave pitch and roll velocities, because both/each of the types of values are representative of the relative velocity between a corner of the vehicle body of the vehicle and its respective vehicle wheel's motion and it would be simply a matter of substituting one like term for another, to yield the same result with respect to vehicle relative heave, vehicle relative pitch and vehicle relative roll.

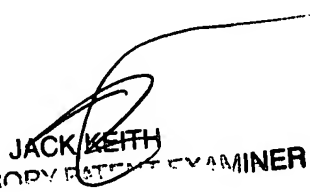
***Conclusion***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edward Pipala whose telephone number is 571-272-1360. The examiner can normally be reached on M-F 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
ejp

  
JACK KEITH  
SUPERVISORY PATENT EXAMINER